CONTENTS VOLUME 59

Special Issue: The Worldwide Network of Digital Observatories: Implications for Accuracy, Studies of the Earth's Deep Interior, and Satellite Mapping of the Earth's Magnetic Field
Guest Editors: R.L. Coles and A.W. Green, Jr.

Editorial v
Contents ix
Introductory remarks
R.L. Coles (Ottawa, Ont., Canada) and A.W. Green, Jr. (Denver, CO, U.S.A.) 1

Research Papers
Magnetic observatories at the turn of the century: a forward look
W.F. Stuart (Edinburgh, Gt. Britain) 3
What do we mean by accuracy in geomagnetic measurements?
A.W. Green, Jr. (Denver, CO, U.S.A.) 13
Accuracy of recordings at a digital geomagnetic observatory
C. Sucksdorff (Helsinki, Finland) 17
Ring-core fluxgate magnetometers for use as observatory variometers
B.B. Narod and J.R. Bennest (Vancouver, B.C., Canada) 23
The Automatic Remote Geomagnetic Observatory System (ARGOS) operated in the U.K. by the British Geological Survey
J.A. Riddick, A.C. Greenwood and W.F. Stuart (Edinburgh, Gt. Britain) 29
Operation of U.S. Geological Survey unmanned digital magnetic observatories
L.R. Wilson (Denver, CO, U.S.A.) 45
Tihany Observatory's improved DIMARS system
L. Drimusz, L. Haasz, L. Hegymegi, A. Kormendi and Zs. Koros (Budapest, Hungary) 55
The unmanned geophysical data collection platform based on the digital magnetometer CMVS-6
A.S. Amiantov, A.N. Zaitzev and V.I. Odintsov (Troitsk, U.S.S.R.) 61
On the digital geomagnetic observatory at Lunping, Taiwan
Y.-N. Huang (Taiwan, Republic of China) 66
Improving baseline drift in fluxgate magnetometers caused by foundation movements, using band suspended fluxgate sensors
O. Rasmussen and E.K. Lauridsen (Copenhagen, Denmark) 78
A digital magnetometer system using conventional variometers and opto-electronic converters
M. Beblo (Fuerstenfeldbruck, F.R.G.) 82
Upgraded Norwegian magnetic observatories in the Artic
A. Brekke, T. Hansen, S. Berger, T. Brattli and B. Holmeslet (Tromsø, Norway) 89
Kakioka Automatic Standard Magnetometer (KASMMER)
M. Kuwashima (Ibaraki, Japan) 97
Accuracy in geomagnetic measurements of Japanese magnetic observatories
M. Kuwashima (Ibaraki, Japan) 104
An elavation of the accuracy of geomagnetic data obtained from an unattended, automated, quasi-absolute station
D.C. Herzog (Denver, CO, U.S.A.) 112

Determination of the accuracy and operating constants in a digitally biased ring core magnetometer
A.W. Green, Jr. (Denver, CO, U.S.A.) 119

Guide for Authors 123

Letter Section
Lunar and solar triggering of earthquakes
R.M.C. Lopes, A. Mazzarella, A. Palumbo (Naples, Italy) and S.R.C. Malin (London, Gt. Britain) 127
Prediction of potentially damaging earthquakes in the Cretan segment of the Hellenic Arc
G.A. Papadopoulos (Athens, Greece) 130

Research Papers
The velocity structure and heterogeneity of the upper mantle
B.L.N. Kennett and J.R. Bowman (Canberra, A.C.T., Australia) 134
Upper mantle dissipation of long-period shear phases
D.K. Chowdhury (Fort Wayne, IN, U.S.A.) 145
Waveform modelling of deep reflections from complex strata at Tariki, New Zealand, using an F–K domain propagator method
A.J. Haines (Wellington, New Zealand) 153
Dimension of geomagnetic attractor from data on length of day variations
G.G. Malinetskii, A.B. Potapov (Moscow, U.S.S.R.), S.M. Gizzatulina, A.A. Ruzmaikin and V.D. Rukavishnikov (Troitsk, Moscow Region, U.S.S.R.) 170
Low-wavenumber signatures of time-dependent mantle convection
G.T. Jarvis (North York, Ont., Canada) and W.R. Peltier (Toronto, Ont., Canada) 183
ConMan: vectorizing a finite element code for incompressible two-dimensional convection in the Earth's mantle
S.D. King, A. Raefsky and B.H. Hager (Pasadena, CA, U.S.A.) 196
Generation of magnetic fields by convection in a rotating spherical fluid shell of infinite Prandtl number
K.-K. Zhang and F.H. Busse (Bayreuth, FRG) 209

Book Reviews
Neodymium Isotope Geochemistry—an Introduction by D.J. DePaolo—C.J. Hawkesworth 224
Seismic Strong Motion Synthesis by B. Bolt (Editor)—M. Bouchon 225
Thermoluminescence of Solids by S.W.S. McKeever—H.M. Rendell 226
Kleine Meteoritenkunde by F. Heide—K. Metzler 227

Letter Section
Vertical electric profile at Choutuppal (Hyderabad) in peninsular India
T.S. Sastry, S.N. Prasad, B.J. Srivastava and M. Someswara Rao (Hyderabad, India) 229
Centroid-moment tensor solutions for January–March 1989
A.M. Dziewonski, G. Ekström, J.H. Woodhouse and G. Zwart (Cambridge, MA, U.S.A.) 233

Research Papers
Q-Structure beneath the north and central Indian Ocean from the inversion of observed Love and Rayleigh wave attenuation data
D.D. Singh (Hyderabad, India) 243

Tangentially geostrophic flow at the core–mantle boundary compatible with the observed geomagnetic secular variation: the large-scale component of the flow
C. Gire and J.-L. Le Mouël (Paris, France) 259
Spectral source parameters for three earthquakes in the southern Red Sea
F. Kebede and T. Van Eck (Uppsala, Sweden) 288
Whole mantle P-wave travel time tomography
H. Inoue (Ibaraki, Japan), Y. Fukao (Nagoya, Japan), K. Tanabe and Y. Ogata (Tokyo, Japan) . . 294
Core-mantle topographic torque: a spherical harmonic approach and implications for the excitation of the Earth's rotation by core motions
J. Hinderer, H. Legros (Strasbourg, France), D. Jault and J.-L. Le Mouël (Paris, France) 329
A method of estimating the westward drift velocity and possible correlation with features of global tectonics
L. Urban and A. Janáčková (Prague, Czechoslovakia) 342

Corrigendum 349

Contents of Volume 59 351